

REMARKS/ARGUMENTS

Claim Rejections – 35 USC § 102

Claims 1,2,4,5, 7, 10, 14, 15, 17, 19,21,22,25-28,30,32,35,37,39,41,43 stand rejected under 35 U.S.C. 102(b) as being anticipated by Tiedemann, Jr. et al., USPN 5,914,950.

Claim 1, as amended, refers to an apparatus that comprises, *inter alia*, a summer for summing less than all of the plurality of covered sequences to form a first Code Division Multiplexed (CDM) signal; and a selector for selecting the summer from among a plurality of summers. **Claim 21**, as amended, refers to a wireless communication system that comprises, *inter alia*, a summer for summing less than all of the plurality of covered sequences to form a first Code Division Multiplexed (CDM) signal; and a selector for selecting the summer from among a plurality of summers.

Claim 17, as amended, refers to a wireless communication device. The wireless communication device comprises, *inter alia*, a summer for summing less than all of the plurality of covered sequences to form a first Code Division Multiplexed (CDM) signal, and a selector for selecting the summer from among a plurality of summers. **Claim 25**, as amended, refers to a method of multiplexing plurality of symbol streams. The method comprises, *inter alia*, summing less than all of the plurality of covered sequences to form a first CDM signal; and selecting the summer from among a plurality of summers.

Claim 37, as amended, refers to an apparatus, comprising, *inter alia*, means for summing less than all of the plurality of covered sequences to form a first CDM signal; and means for selecting the summer from among a plurality of summers. **Claim 41**, as amended, refers to processor readable media, operable to perform steps including, *inter alia*, summing less than all of the plurality of covered sequences to form a first CDM signal; and selecting the summer from among a plurality of summers.

Tiedemann teaches summer 168a which receives data from *all data sources* that have a quadrature component; 168b which receives data from *all QSPK* sources that have an in-phase component; and summer 170 which collect data from *all* of the data sources that have an in-phase component. Because each summer (168a, 168b and 170) in Tiedemann adds together signals from so many input sources, each Walsh code (in 150a

to 150m, 152a and 152b to 156a and 156b) has a long code length, to maintain orthogonality in the face of so many input signals. As noted in Fig. 5 of Tiedemann with respect to 156a and 156b, the Walsh set has at least $M+N$ Walsh codes. Tiedemann does not teach or suggest at least such a selector.

Claim 14 refers to an apparatus that comprises, *inter alia*, one or more **sub-CDM signals**, each comprising a plurality of symbol sequences for respective ones of a plurality of mobile stations covered by a second plurality of covering sequences. **Claim 19** refers to a wireless communication device comprising, *inter alia*, one or more **sub-CDM signals**, comprising a plurality of symbol sequences for respective ones of a plurality of mobile stations covered by a second plurality of covering sequences. **Claim 39** refers to an apparatus comprising, *inter alia*, one or more sub-CDM signal. It will be recalled that, in the embodiment described above, the number of symbol sequences covered by a second plurality of covering sequences is equal to the number of mobile stations. **Claim 43** refers to processor readable media, operable to perform steps including, *inter alia*, receiving a CDM signal, covered with a first covering sequence, comprising one or more sub-CDM signals.

Tiedemann does not teach or disclose sub-CDM signals, or a comprising a plurality of symbol sequences for respective ones of a plurality of mobile stations covered by a second plurality of covering sequences. In Tiedemann, a long PN code is used (see 172a and 172b) of Tiedemann, and large numbers of Walsh codes are used at an input stage. The output is covered by $\text{Cos}(Wct)$ and by $\text{Sin}(Wct)$, although there are many more than two inputs. Accordingly, Applicant requests that these rejections be withdrawn.

The remaining claims that are rejected on this ground are dependent claims that depend ultimately from one of these independent claims, and therefore incorporate all of the limitations of the parent claim from which they depend. For these reasons, therefore, Applicant respectfully requests that this rejection be withdrawn with respect to all rejected claims.

Claim Rejections – 35 USC § 102(b)

Claims 11, 13, 16, 18, 20, 23, 24, 33, 34, 36, 38, 40, 42, 44 stand rejected under 35 U.S.C. 102(b) as being anticipated by Schilling et al. (USPN 6,061,359).

Claim 11 refers to an apparatus comprising, inter alia, a time multiplexer for receiving the plurality of covered CDM signals and forming a Time Division Multiplexed (TDM) signal comprising the plurality of covered CDM signals, and a second encoder for covering the TDM signal with a covering sequence to form a covered TDM/CDM signal.

Claim 18 refers to a wireless communication device comprising, inter alia, a time multiplexer for receiving the plurality of covered CDM signals and forming a Time Division Multiplexed (TDM) signal comprising the plurality of covered CDM signals; and a second encoder for covering the TDM signal with a covering sequence to form a covered TDM/CDM signal. **Claim 23** refers to a wireless communication system, including a wireless communication device comprising, inter alia, a time multiplexer for receiving the plurality of covered CDM signals and forming a Time Division Multiplexed (TDM) signal comprising the plurality of covered CDM signals; and a second encoder for covering the TDM signal with a covering sequence to form a covered TDM/CDM signal.

As shown in Fig. 3 of Schilling, the multiplier 48 (or the in-phase multiplier device 48) merely shifts a signal to a carrier frequency (col. 7 line 59 or col. 16, line 67) and the quadrature-phase multiplier device 148 (which is coupled through a 90° phase shift device 147 to the oscillator 49 for shifting a second multichannel-spread-spectrum signal to a carrier frequency) do not provide a Time Division Multiplexed (TDM) signal. The Office Action states that Schilling teaches:

a time multiplexer for receiving the plurality of covered CDM signals and forming a Time Division Multiplexed (TDM) signal comprising the plurality of covered CDM signals [Col. 13, Table 4];

However, Col 13, Table 4, merely teaches that the “Duplex Method” without explaining the “Duplex Method.” Normally, Duplex Method merely indicates a bidirectional communication, alternating between receiving mode and transmitting mode, not that multiple signals may be transmitted together on a shared channel. Applicant submits that Duplex Mode does not teach or suggest a time divisional multiplexed signal.

Claim 16 refers to an apparatus, operable with a CDM signal, covered with a first covering sequence, comprising one or more TDM signals, each of the one or more TDM signals comprising one or more sub-CDM signals. The apparatus comprises, inter alia, a demultiplexer for selecting one of the TDM signals from the despread CDM signal.

Claim 20 refers to a wireless communication device comprising, inter alia, one or more TDM signals, each of the one or more TDM signals comprising one or more sub-CDM signals; and a demultiplexer for selecting one of the TDM signals from the despread CDM signal.

Claim 33 refers to a method of multiplexing plurality of symbol streams, comprising time division multiplexing the plurality of CDM signals to form a TDM signal. **Claim 42** refers to processor readable media, operable to perform steps including, inter alia, time division multiplexing the plurality of CDM signals to form a TDM signal. **Claim 36** refers to a method of decoding a symbol sequence comprising, inter alia, time demultiplexing the despread received CDM signal to select a TDM signal. **Claim 44** refers to processor readable media, operable to perform steps including, inter alia, time demultiplexing the despread received CDM signal to select a TDM signal. **Claim 38** refers to an apparatus comprising, inter alia, means for time division multiplexing the plurality of CDM signals to form a TDM signal. **Claim 40** refers to an apparatus comprising, inter alia, means for time demultiplexing the despread received CDM signal to select a TDM signal.

The Office Action states that Shilling teaches:

demultiplexer for selecting one of the TDM signals from the despread CDM signal [Col. 20, lines 7-18, where each signal is TDM multiplexed as described previously in the document and 63 despreads the signals into in-phase and a quadrature-phase components which selects a TDM signal, Col. 13, Table 4];

However, at Col. 20, lines 7-18, Schilling merely teaches:

The translating device 62 translates the received QAM spread-spectrum signal from the carrier frequency to a processing frequency. The translating device 62 may be a 10 mixer, which is well known in the art, for shifting an information signal, which in this disclosure is the received QAM-spread-spectrum signal, modulated at a carrier frequency to IF or

baseband. The processing frequency may be RF, IF, at baseband frequency or other desired frequency for a digital signal processor. The signal for shifting the received QAM-spread-spectrum signal is produced by the oscillator 63. The QAM-spread-spectrum signal is processed into an in-phase component and a quadrature-phase component.

Applicant submits that "TDM" clearly refers to time division, not to frequency modulation. Therefore, translating a spread-spectrum signal from one frequency to another does not teach or suggest TDM; nor does "shifting" a signal "modulated at a carrier frequency to IF or baseband." The Office Actions states that TDM multiplexed" is "described previously in the document," however provides no guidance as to where such a teaching may be found in the document. As noted, Col. 13, Table 4 mentions "Duplex Method" but does not teach or suggest time-multiplexing a plurality of signals, all moving in one direction, into a shared channel. Accordingly, Applicant requests that these rejections be withdrawn/

The remaining claims that are rejected on this ground are dependent claims that depend ultimately from one of these independent claims, and therefore incorporate all of the limitations of the parent claim from which they depend. For these reasons, therefore, Applicant respectfully requests that this rejection be withdrawn with respect to all rejected claims.

Claim Rejections – 35 USC § 103

Claims 3, 31 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Tiedemann, Jr. et al. (USPN 5,914,950, Herein as Tiedemann) in view of Agrawal et al. (USPN 6,134,215, Herein as Agrawal). Claims 6, 29 stand rejected under 35 U.S.c. 103(a) as being unpatentable over Tiedemann, Jr. et al. (USPN 5,914,950, Herein as Tiedemann) in view of Kanterakis et al. (USPN 6,389,056, Herein as Kanterakis). Claim 12 is rejected under 35 U.S.c. 103(a) as being unpatentable over Schilling et al. (USPN 6,061,359, Herein as Schilling) in view of Tiedemann, Jr. et al. (USPN 5,914,950, Herein as Tiedemann).

All of the claims rejected on this ground are dependent claims, and depend ultimately from claims that are not rejected on this ground and that, for the reasons stated above, are allowable. As dependent claims, all of these claims incorporate all of the

limitations of the parent claims from which they respectively depend. Accordingly, Applicant requests that this rejection be withdrawn with respect to all of these claims.

Allowable Subject Matter

The Office Action has stated that Claims 8 and 9 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant is grateful to the Examiner for noting the allowability of these claims. Applicant will rewrite these claims in independent form, including all of the limitations of the base claim and any intervening claims, if the rejection of the independent claims from which these rejected claims ultimately depend is not withdrawn.

CONCLUSION

In light of the amendments contained herein, Applicants submit that the application is in condition for allowance, for which early action is requested.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

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